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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,203	11/02/2000	Hsin-Hsin Chou	56073USA5A.002	4516
32692	7590	01/30/2003	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			KAO, CHIH CHENG G	
		ART UNIT	PAPER NUMBER	
		2882		
DATE MAILED: 01/30/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/705,203	CHOU ET AL.
	Examiner Chih-Cheng Glen Kao	Art Unit 2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 October 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 4-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 4-24 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 November 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9,10. 6) Other:

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “plurality of independently operable light emitting devices” and “the volume diffuse further comprises a plurality of louvers disposed to inhibit cross-talk of light between separate light emitting devices” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-6, 11-15, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. (WO 98/17083) in view of Stevens et al. (US Patent 5,910,706), Perlo et al. (EP 0969699), and Umemoto et al. (US Patent 6199995).

Horikx et al. shows an information display (Page 1, lines 6-7) comprising: a plurality of light emitting devices (LEDs) (Page 6, lines 25-26), such as electroluminescent (EL) (Page 1,

line 6), organic EL (Page 1, lines 13-20), or phosphor-based LEDs, emitting light through a transmissive layer (Fig. 1C, #2) and a frustrator element comprising a volume diffuser with particles (Fig. 1C, #8).

However, Horikx et al. does not disclose independent LEDs, an antireflective element, voids, a diffusive surface orientated towards the transmissive layer, microstructured structures, the frustrator element between the transmissive layer and viewer, and a transmissive layer between a surface diffuser and light source.

Stevens et al. shows independent LEDs (Fig. 9a and 9b) and an antireflective element (Fig. 3f, #16). Perlo et al. teaches a diffusive surface (Fig. 7, #4) orientated towards the transmissive layer (Fig. 7, #5), microstructured structures (Fig. 7, #4), the frustrator element between the transmissive layer and viewer (Fig. 1 and 7), and the transmissive layer between the surface diffuser and light emitter (Figs. 1-6). Umemoto et al. teaches voids (col. 12, lines 24-30).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have independent LEDs and an antireflective element of Stevens et al. with the device of Horikx et al., which is explained with motivation as follows.

Regarding independent LEDs, one would be motivated to have pixilated control of the thin film electroluminescent device as needed for semiconductors as seen in Figures 9a and 9b.

Regarding an antireflective element, one would be motivated to enhance light transmission as shown by Steven et al. (Claim 7).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have voids of Umemoto et al. with the device of Horikx et al., since one

would be motivated to use the voids for achieving efficient utilization of light as implied by Umemoto et al. (col. 12, lines 13-24).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the diffusive structures of Perlo et al. with the device of Horikx et al., since one would be motivated to use the structures pointed to the transmissive layer to achieve the best light output characteristics as implied from Perlo et al. (col. 3, lines 35-53).

3. Claims 7, 17, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al. as applied to claims 4, m 12, and 22 above, and further in view of Arai (US Patent 6027220).

Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al. suggest a device as recited above.

However, Horikx et al. does not disclose prismatic structures.

Arai teaches prismatic structures (col. 2, lines 29-37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have prisms of Arai with the suggested device of Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al., since one would be motivated to use prisms to correct for priority propagation direction as implied from Arai (col. 2, lines 4-10).

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. in view of Stevens et al., Perlo et al., and Suga (US Patent 6297908).

For purposes of being concise Horikx et al. in view of Stevens et al. and Perlo et al. suggest a device as recited above.

However, Horikx et al. does not disclose a diffuser comprising louvers absorptive of light nor the diffuser between the transmissive layer and viewer position.

Suga teaches a diffuser comprising louvers absorptive of light (col. 1, lines 36-40).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have louvers of Suga with the suggested device of Horikx et al. in view of Stevens et al. and Perlo et al., since one would be motivated to use louvers to improve frontal contrast as implied from Suga (col. 1, lines 36-40).

Note that “disposed to inhibit cross-talk of light between separate light emitting devices” is a recitation with respect to the manner in which a claimed apparatus is intended to be employed. It does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

5. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. in view of Stevens et al., Perlo et al., and Suga as applied to claim 8 above, and further in view of Beeson et al. (US Patent 5396350).

Horikx et al. in view of Stevens et al., Perlo et al., and Suga suggest a device as recited above.

However, Horikx et al. does not disclose louvers primarily reflective.

Beeson et al. teaches louvers primarily reflective (Fig. 7, #28).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have reflective louvers of Suga with the suggested device of Horikx et al. in view of Stevens et al., Perlo et al., and Beeson et al., since one would be motivated to use these louvers to provide an energy efficient, bright, and uniform distribution of light as implied from Beeson et al. (col. 2, lines 24-30).

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al. as applied to claim 4 above, and further in view of Stevens et al. (EP 0 814 642 A1).

Horikx et al. in view of Stevens et al. (US), Perlo et al., and Umemoto et al. suggest a device as recited above.

However, Horikx et al. does not seem to specifically disclose phosphor-based LEDs.

Stevens et al. (EP) teaches phosphor-based LED (Abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the prismatic microstructures and phosphor-based LEDs of Stevens et al. (EP) with the suggested device of Horikx et al. in view of Stevens et al. (US), Perlo et al., and Umemoto et al., since phosphor-based LEDs and EL LEDs are considered equivalent structures as shown by Stevens et al. (EP) (col. 1, lines 10-20). One would be motivated to use phosphor-based LEDs for use in ultra high resolution miniature display systems as shown by Stevens et al. (EP) (col. 1, lines 3-9).

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7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al. as applied to claims 4 above, and further in view of Arai et al. (US Patent 6275338).

Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al. suggest a device as recited above.

However, Horikx et al. does not disclose the diffuser between the light source and transmissive layer or the diffuser between the transmissive layer and viewer position.

Arai et al. teaches the diffuser between the light source and transmissive layer (Fig. 6, #5 on the right) and the diffuser between the transmissive layer and viewer position (Fig. 6, #5 on the left).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have diffuser of Arai et al. with the suggested device of Horikx et al. in view of Stevens et al., Perlo et al., and Umemoto et al., since one would be motivated to add additional coating depending on applications as shown by Arai et al. (col. 5, lines 25-30) such as more diffusing.

8. Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horikx et al. in view of Stevens et al., Perlo et al., and Suga as applied to claim 8 above, and further in view of Arai et al.

Horikx et al. in view of Stevens et al., Perlo et al., and Suga suggest a device as recited above.

However, Horikx et al. does not a volume diffuser between the transmissive layer and viewer.

Arai et al. teaches a volume diffuser between the transmissive layer and viewer (Fig. 6, #5 on the left).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have a volume diffuser between the transmissive layer and viewer of Arai et al. with the suggested device of Horikx et al. in view of Stevens et al., Perlo et al., and Suga, since one would be motivated to add additional coating depending on applications as shown by Arai et al. (col. 5, lines 25-30) such as more diffusing. Note that the volume diffusers of Arai et al. and Suga are art-recognized equivalents in that they both are diffusers that transmit light.

Response to Arguments

9. Applicant's arguments with respect to claims 5-24 have been considered but are moot in view of the new ground(s) of rejection.

10. With regards to surface and volume diffusers, these two elements are considered art-recognized equivalents in that they both diffuse light. It would only take routine skill in the art to substitute one type of diffuser for another.

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Allowable Subject Matter

11. The indicated allowability of claims 8-10, 20, and 21 is withdrawn in view of the newly discovered reference(s) to Suga. Rejections based on the newly cited reference(s) are as recited above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk

January 27, 2003


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